

Amateur Television Journal

May, 2025
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BATVC web site: www.kh6htv.com

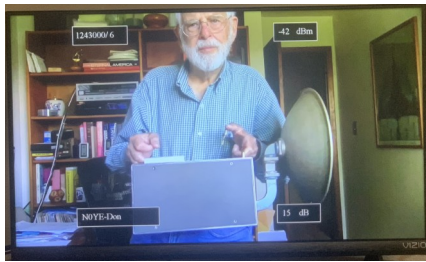
ATN web site: www.atn-tv.com



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**BATVC microwave ATV hams hit the field
for the first time this spring !**



Once again, our resident microwave guru, Don Nelson, N0YE, got us going. He first organized an on the air tutorial on our weekly ATV net. These photos were taken from that net with Don showing off his prize 10 GHz home-brew transverter. He



built it several years ago to participate in the ARRL's 10GHz contests with SSB and logged lots of contacts. He has since modified it to also work with DVB-T video.

So, Don next organized a "shake-down" outing for folks to try out their long dormant 10 GHz rigs for Saturday, May 24th. Everyone was to assemble in an open space area near Bill McCaa's, K0RZ QTH. Bill has a powerful 10 GHz home station with a rotatable microwave dish on a tall tower which is fed with elliptical waveguide and a 10 watt, HP TWT amplifier. Bill has collected a really large number of grid squares on 10 GHz SSB & CW with this station. Bill also has modified his rig to work with DVB-T video. The purpose of this May 24th outing was to verify everyone's rig was capable of at least transmitting and receiving successfully over short distances. We used our standard ATV frequency of 10.380 GHz, which is also the input to the W0BTV repeater, located 9 km (6.1 miles) to the west. Two of the participating hams were also able to put their signals thru the repeater successfully. The following photos are from this first 10 GHz outing. Don is planning more 10 GHz DTV outings to follow. The next will be from high spots within Boulder County. Then he is planning a long distance DTV DX-pedition with a rover driving north to high spots and hoping to get as far north as the Colorado-Wyoming border at a distance of 121 km, 75 miles.



Bill, AB0MY's, 10 GHz rig --- Bill opted to use two dishes, one for receive with a Bull's Eye LNA. The other, shown in the photo on the right, holds his transmitter amplifier immediately at the feed horn eliminating any feed line loss. Bill's transmitter puts out +10 dBm of DVB-T rf power.



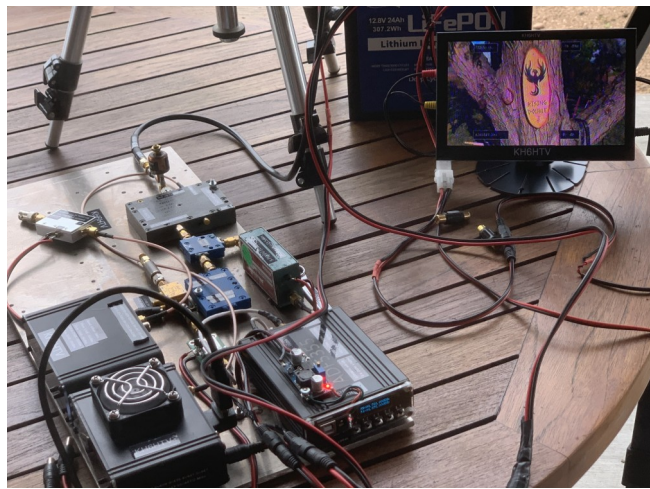
Chris, K0CJG's 10 GHz DVB-T station Chris again is using two separate antennas with the big dish for his transmitter. He has an LNA with it's circular feed horn antenna mounted on the separate tripod to the right in the photos. At this point Chris is still searching for a suitable 10 GHz rf amplifier. So he is running very low QRP with only the rf output from his mixer at present.



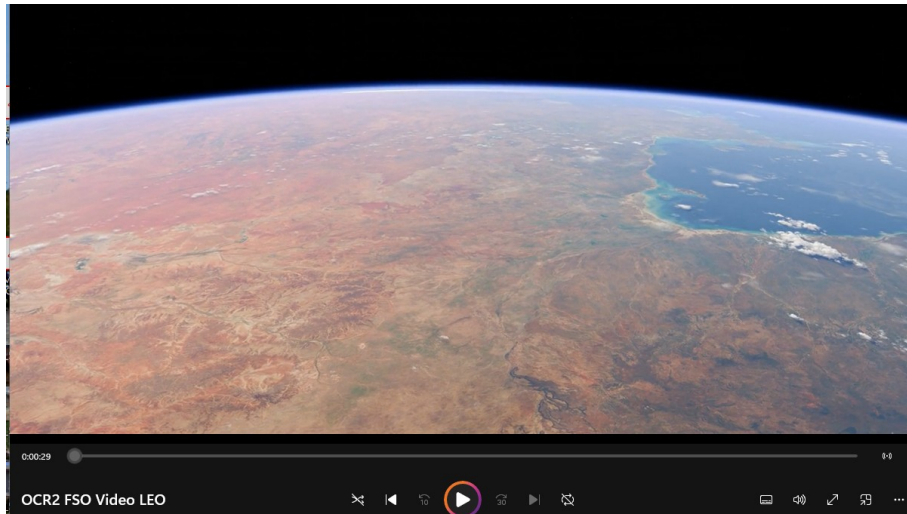
Debbie, WB2DVT, and Pete, WB2DVS, and their 10 GHz rig. They are using an N0YE hand-me-down 10 GHz transverter with a built-in dish antenna. Their rf output is +24 dBm of DVB-T rms power.



Photo on the left is of Steve, WA0TQG, and Don, N0YE, with Don's 10 GHz combo horn antenna and transverter. Steve was gathering intel on how to build his future home 5/10 GHz DVB-T station. Photo on right was Jim's, KH6HTV, 10 GHz portable station. His antennas are mounted side-by-side on a single camera tripod. The red circular antenna is a Bull's Eye LNA for receive. For transmit, Jim is using a 17dBi X band horn antenna. He has attached directly to the horn antenna his rf power amplifier putting out +17 dBm of DVB-T rf power. In the back ground was Jim's supervisor, his English BullDog, Ruby.



More photos of Jim, KH6HTV's, portable 5 & 10 GHz station actually working thru the W0BTV ATV repeater over a distance of 4.9 miles. The equipment was set up on the back deck of Jim's new QTH. The BBQ grill dish antenna was receiving the 5.905 GHz, FM-TV signal from the NCAR repeater and being displayed on the small 7" video monitor. The photo on the right shows Jim's 50mW, 10 GHz transmitter.

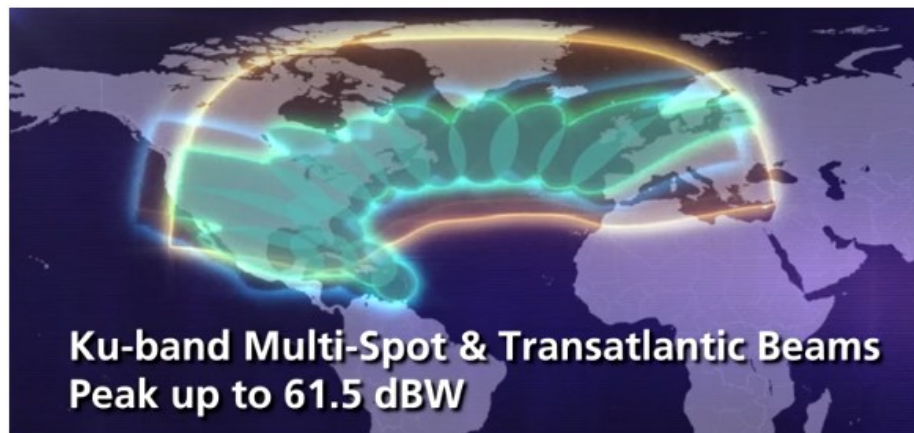


San Diego's ATV group Cube-Sat view of Mexico from Space !

Mario, KD6ILO, has just shared with us a video showing the view from their new Cubs-Sat passing over Mexico from the north-west going to the south-east. Fantastic video down-linked to their control center.

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OSCAR ATV Satellites for the Americas ?



There has been some recent discussion on the DigitalATV user's group web site. Here reproduced are a couple of interesting discussions between Joel, KD6W, and Sigi, DG9BFC regarding positioning such a satellite at 43° West.

KD6W: Sigi --- I like your optimism. If true, 43 West would be great for the east coast of Canada, US and all of South America with coverage extending into most of northern Europe. But for most CA, OR, WA hams, pointing a dish at 43 W is below the horizon so they won't see it and for those high and east enough are pointing down at the horizon. This techno slide shows the pattern for Sky Brasil 1 currently at 43.1 West where you can see the entire west coast is shaved off from the CONUS beam and most of the spot beams.

Ideally, CONUS hams prefer something closer to 100 West, but there are nearly 15 GEO satellites all within 5 degrees because that is the sweet spot. I recall we could just barely see satellites over at 95 West from Silicon Valley, and strangely enough, most of the spacecraft sitting at 95 W are mostly idle. I have no way to know why that has happened at 95 W, other than perhaps they are backups for other spacecraft or surplus to the market needs. But I can't help but wonder why Echostar launched Jupiter 3 (Echo24) just 3 years ago and it sits completely idle. Doing nothing. This spacecraft is a 9200kg Space Systems Loral 1300 monster with 500 Gbps throughput, sitting up there, idling, doing nothing. yep <- this thing... is doing nothing but fly around 95.2 W. What a waste of a perfectly good spacecraft (sigh). 73, Joel - KD6W

DG9BFC Reply: QO-100 works from Philipines to Brazil and from island to Anarctica (there even was an activation of Newfoundland near the "Signal Hill" with 1.5 degrees BELOW horizon!! ... and they still made contacts) ... together with Xmas island I made the "WAC" :-)

QO-100 has a wide beam covering the complete blue marble (ok Australia is on other side hi hi) ... not like those multi-beams you show in your picture (and my best bet is that new sat will have a similar beam) Canada west coast .. ok that maybe is a tiny bit below horizon .. Alaska?? out of the question You can test with dishpointer if your location is covered or below the horizon ... i used Intelsat 32E (43.2west) to have a rough idea (I have overseen Sky Brazil at 43.1) Example Los Angeles has around 3.7 degrees elevation towards Intelsat 32E ... not much but doable (if you have no skyscraper in the way) ... I live in northern Germany and have something around 13 degrees. Yes there will be areas that are not covered ... its a compromise to place it on 43 west (so Europe and Canada are in footprint) ... and yes .. if you live in a valley and you have a mountain in the direction of the sat .. you can only work portable (and climb that mountain with a camping dish) ... At least a good amount of Canada and USA is in that planned footprint ... fingers crossed we will see it soon in the sky :-)

73 DG9BFC, Sigi

KD6W: What would be IDEAL in my humble opinion, along with a 43 W spacecraft would be a third satellite well over the Pacific spanning Asia with the Americas.

Put this 3rd spacecraft in an area where nobody cares like 150 W where Galaxy 13 is parked, going nowhere and doing nothing, just flying around waiting for the end of life mission.

Then if the spacecraft patterns of 1,2, and 3 were to overlap at the edges could we start doing multi hop relays. I suppose we are starting to get ahead of ourselves. But one can dream. --- Joel

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Feed-Back on 10m NBTv Experiments:

ON4VVV: Dear Grant --- I have been reading your call in the May BOULDER ATV newsletter from Jim KH6HTV.

There was an article from me in the April issue combined with a search for OM's from across the Atlantic that are able to receive and maybe also transmit Narrow Band D-ATV signals in DVB-S or S2 in H262 or H264 compression with symbol rates of 125ks or 66ks.

I have +300W D-ATV signal available in a 4 el monoband 10m beam and I am willing to do these tests with you preferably on 29,500MHz and preferably in the later afternoon Central EU time.

Very best regards, 73's, Frans, ON4VVV, On4vvv@uba.be

VE3XTV's Reply: Hi Frans --- I very interested doing NBTv on HF, but I do not have any radio equipment setup at this time as I renting a room in Toronto for work.

My long term plan is have a 10m/6m 1kW power amplifier and dual band Yagi antenna for doing ATV/DATV experiments, at the moment I only make improvements to my NBTv software and doing simulations. As it is near impossible get anyone local to me, to do anything with ATV/DATV, who has the right setup for HF.

Here is the link to GitHub for the NBTv encoder/decoder software: <https://github.com/GrantXTV/NBTv-Project>, as SDR modulator and demodulator I can send you the files for GNURadio to setup the SDR with HackRF for testing. I would like to stay below 29.5 MHz as there is a lot FM voice activity here in the US and Canada, between 29.5 to 29.7MHz. I can do go anywhere from 29.1 to 29.5 MHz as there is less activity in this area, how would 29.45 MHz work?

I will keep asking around to see if I can find someone here who has good setup on the 10m band, as I have been working on this technology since late 2021 and I would like do on air testing with OFDM. As it seems for now the US is not able to any experiments on HF with ATV/DATV, therefore this only leaves Canada to make contacts across the Atlantic.

Please keep in contact as I am making improvements to NBTv software and getting the equipment for HF, as it takes time and money to get this setup ready to go. As there is a lot that can be done on HF with television, as there are many things happening in the background.

73 de Grant, VE3XTV

ON4VVV: Thank you for your swift reply. I am 100% ready for TX and RX on 10 and 6m and above, on 6m I have a 6el long spaced monoband beam. My TX conditions for narrowband are a "BATC PORTSDOWN TX" with a mini lime SDR, working directly from 10m up to 13cm, and above that for 6cm and 3cm I am using upconverters. My PA on 10 and 6m are 2kW but due to the linearity and the risk of blowing them up in smoke, I am using only between 300 and 500W. Apart that I am

also equipped for wideband ATV such as old AM, FM and DVB-T and T2 for local contacts and EU ATV contests.

For RX I am using 2 systems in parallel:

- 1)a "BATC minitiouner" with for 10 and 6m RX an upconverter as described in the April issue of the boulder ATV newsletter from Jim, because the minitiouner lowest RX frequency is 2m.
- 2)an SDR PLAY with SDR ANGEL software, this solution gives me reception from 1MHz up to 2 GHz and above that I am using downconverters.

This last solution is featuring a "waterfall" where you can clearly see if some multipath is disturbing the formation of the pictures, while the minitiouner is faster for pictures and less complicated to use due to some automatic features settings. I have also a spectrum analyser in parallel with these 2, with setting of 1 or 2dB per vertical division for monitoring if some signal is arriving or not, and if it is strong enough for an ATV decode. Staying below 29,5MHz on 29,45 or even lower is perfect for me.

73's Frans, ON4VVV

VE3XTV: Hi Frans --- I will need to setup GNU Radio for DVB-S and DVB-T with my HackRF, I should be able to feed via UDP to VLC to do h.262 and h.264 video decoding. The only issues I can see is the DVB protocol has too many over heads for narrow band transmissions, so a cut down protocol may need to be looked at. This is the advantage I have with hybrid NBTv system I have been working on, as it sends out video data without transmission protocols and error correction. Providing a signal well within the noise, where DVB-T would need yo get a data lock, before recovering a data stream with a higher signal to noise required.

I will keep asking around to find a station locally, who interested in doing 10m HF television as I can only do so much with RF simulations.

73 de Grant, VE3XTV

Late Breaking News --- ATV at Dayton Hamvention **as reported by Dave, AH2AR**

This article is in "bullet form" as there were a number of separate yet related ATV Hamvention activities that needed to be separately showcased. The weather was actually excellent for the greater Dayton area, and attendance appeared to be pretty solid. The Dayton Daily News reported 35000 attendees, however, there would likely have been more if the really "full force" threatening weather (that never arrived during the day) had not scared some of the people away on Saturday. There had been some wind gusts that launched several canopies, so we still did not completely skirt the systems that tracked North and South of us on Saturday. Unfortunately, one of the launched canopies landed on Tom Holmes N8ZM's brand new truck, cracking the windshield and severely scratching the paint.

1. ATV Booth: We had many visitors to the booth on Saturday. Representation at the booth included the Amateur Television at Columbus Ohio (ATCO) Art Towslee WA8RMC, the Amateur Television Network (ATN) Joel Wilhite KD6W, and Dayton Amateur Radio Association (DARA)

Bruce Kobe K8FIX, Dave Pelaez AH2AR, Dave Stepnowski, KC3AM, and Bill Bouchard from Delaware, and Rick Lesquier KK4LW from Somerset Kentucky.

2. A total of 43 requests came in from hams nationwide to be placed on the newsletter and ATV Journal mailing lists. Interest in ATV certainly had not waned as the requests appeared to be double than what it was from last year.

3. Art WA8RMC has achieved major progress on his Versatune Receiver project. The ATV booth had a side by side "shootout" between Art's Versatune receiver and an HV-110 that was receiving the DARA ATV repeater on 428 MHz, 22 miles in distance from the Huber Heights Ohio DARA clubhouse. There is no doubt that in the congested RF environment of the Hamvention location at the fairgrounds, there were far less "freeze frames" caused by interfering signals encroaching within the receivers' passband on Art's Versatune receiver. I know for certain that I want to be first-in-line once these receivers become available as they will also have far more features than the HiDes receivers.

4. We were unable to run a QAM demo due to the extremely limited separation of the QAM signal at the booth from the incoming DARA ATV repeater signal. The cavity we were using did not provide the isolation we needed to pull it off this year. I have an interdigital filter that might be a better choice and will likely revisit this demo for next year.

5. KD6W's ATV Forum presentation was outstanding! it can be viewed on youtube: <https://www.youtube.com/watch?v=4pyNZPshXZ0> Note that this link is a seven hour Youtube recording of all of the "forum #4 activities", and you can find Joel's presentation at the 1 hour 14 minute point of this posted video... Enjoy!

6. The ATV Dinner was a resounding success! We hosted a total of 20 ATVers from around the country and three items were given away: A Jim Andrews 70cm Preamplifier donated by Mel Whitten K0PFX. Included in the giveaway was an AHD camera, along with a Sony desktop HDMI PTZ camera. Three lucky attendees left the dinner armed with new ATV gear!

7. The primary demo ran for the entire event was in the form of a crossband link on 23cm that provided a live video feed of activities around the ATV booth. The live link was transmitted to the Huber Heights clubhouse and re-transmitted through the DARA ATV repeater back to the Hamvention site. The "latency" that occurred typically may be considered a little annoying, but for this demo, a number of young folks had fun waving at themselves, to experience the delayed video wave back at them three seconds later!

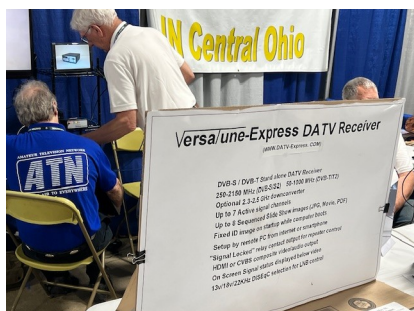
8. We also streamed the majority of Hamvention on Zoom. This is something we had done last year and it appeared to be worthwhile as a number of Zoom check-ins occurred throughout the three day event.

9. Of additional interest is that some of the in-band interference to our ATV link was emanating from a number of sources. With 35000 attendees and no local hamvention band plan, such issues are

bound to arrive. The 70cm bandwidth resembles a hodgepodge of signals that simply has to be tolerated. We did some DFing to determine what some of the signals were. One signal was a 2 MHz-wide DVB-T signal that had popped up on Friday for a few hours, and appeared to be coming from a source within the RV parking area. On Saturday, the signal had disappeared. Another signal appeared on Saturday that was emanating from a nearby booth as a narrowband data signal, but that signal did not seem to be creating any destructive interference to the receiver at the booth that was receiving the incoming DVB-T signal from the DARA repeater.

10. Next Year: We are already in the process of making plans to change up the appearance of the ATV booth as it will be a great opportunity to help out ATN. This is a work in progress as there are only 353 days left to prepare for Hamvention 2026!
73, Dave Pelaez AH2AR

Here is a collection of ATV related photos Dave also sent us to share with our readers.





WOBTV Details: Inputs: 23 cm Primary (CCARC co-ordinated) + 70 cm & 3 cm secondary all digital using European Broadcast TV standard, DVB-T with standard 6 MHz wide TV channels. Frequencies listed are the center frequency of the TV channel.
 23 cm = 1243 MHz (primary), 70 cm = 441 MHz & 3 cm = 10.380 GHz
Outputs: 70 cm Primary (CCARC co-ordinated), Channel 57 -- 423 MHz with 6 MHz BW, DVB-T
 Also, secondary analog, NTSC, FM-TV output on 5.905 GHz (24/7 microwave beacon).
 Operational details in AN-51d Technical details in AN-53d. Available at:
<https://kh6htv.com/application-notes/>

WOBTV ATV Net: We hold a social ATV net on Thursday afternoon at 3 pm local Mountain time (22:00 UTC). The net typically runs for 1 to 1 1/2 hours. ATV nets are streamed live using the British Amateur TV Club's server, via: <https://batc.org.uk/live/> Select *ab0my* or *n0ye*. We use the Boulder ARES (BCARES) 2 meter FM voice repeater for intercom. 146.760 MHz (-600 kHz, 100 Hz PL tone required to access).

Newsletter Details: This newsletter was started in 2018 and originally published under the title "*Boulder Amateur Television Club - TV Repeater's REPEATER*" Starting with issue #166, July, 2024, we have changed the title to "*Amateur Television Journal*." This reflects the fact that it has grown from being simply a local club's newsletter to become the "de-facto" ATV newsletter for the USA and overseas hams. This is a free ATV newsletter distributed electronically via e-mail to ATV hams. The distribution list has now grown to over 800+, both in the USA and overseas. News and articles from other ATV groups are welcomed. Permission is granted to re-distribute it and also to re-print articles, as long as you acknowledge the source. All past issues are archived at: <https://kh6htv.com/newsletter/>

ATV HAM ADS -- *Free* advertising space is offered here to ATV hams, ham clubs or ARES groups. List here amateur radio & TV gear

For Sale - or - Want to Buy

Joe Woods' AD0I Estate: Our ham radio friend, Joe Woods, AD0I, (SK) died this past winter. Joe was a lifelong radio amateur. He was active in local ham radio activities such as BARC, Rocky Mtn. VHF Society, BCARES and amateur television for many years. He helped build the very first Boulder ATV repeater in 1979. His recent illnesses curtailed his beloved ham activities when he was no longer able to get down to his basement ham shack.

I am helping Joe's widow, Arleen, settle his ham radio estate. I have already found a good home for Joe's prized possession, his Icom IC-7300 transceiver. Next I need to find a good home for his HF/VHF/UHF antennas. Please do not contact Arlene directly, but contact me for any questions, etc. --- Jim Andrews, KH6HTV, telephone 303-594-2547, email kh6htv@yahoo.com

FREE to a Good Home

We are offering to give away **FREE** Joe's antennas and antenna rotator. All we ask is for you to remove them from Joe's antenna tower. They were all in working order the last time Joe used them.

HF BEAM: It is a **Cushcraft, model ATV-43**, four element, tri-band beam for the 20, 15 & 10 meter bands. 7.5dB gain on all bands. 18 ft. turning radius. manual included.

HF Dipole: It is a **Diamond model W-735**, 80m/40m dual-band, trapped dipole wire antenna. Overall length is 85 ft.



AD0I Antennas

Antenna Rotator: It is a Cornell-Dubilier Electronics (**CDE**) **model T²X** TailTwister rotator. It comes complete with the inside Control Unit with analog readout meter. The control unit p/n is 51479-10. manual included.

VHF Antenna: It is a three element Yagi antenna for 2 meter band. Unknown mfgr., but I suspect it is a CushCraft

UHF Antenna: It is a **KLM model 420-470-14** for the 70cm band. It is a wide-band, 14 element, high 13.7dBi gain, rear mount, 4 3/4 ft. boom Yagi antenna. It is suitable for wide-band ATV service which is how Joe used it. manual included.

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AD0I Estate --- Ham Radio Gear For Sale

Sale Prices & Terms: Most items have been tested and found functional and in good condition. All proceeds go to Joe's widow. Any reasonable offer accepted. Values quoted are as noted from E-Bay (*note: you would also pay in addition there for shipping & sales tax*). Local sales only. No shipping. Cash or personal checks. Pick up at KH6HTV QTH in Boulder.

More Info or to Purchase: contact Jim Andrews, KH6HTV, mobile 303-594-2547 e-mail = kh6htv@yahoo.com

1. HALLICRAFERS model S-85 Short Wave Receiver, 538kc to 34 Mc, It Works ! includes original manual plus manuals for SX-III receiver and HT-37 transmitter. e-bay = \$125
2. BENCHER model BY-2 Iambic Keyer with chrome base. e-bay = \$150
3. R.L. DRAKE model MN-2000, 2kW Antenna Tuner, manual, e-bay = \$300
4. R.L. DRAKE model W-4, 200W/2kW RF Power Meter, manual, e-bay = \$90
5. R.L. DRAKE model TV-3000-LP, 30 MHz Low Pass Filter, -80dB > 41Mc, 1kW, manual e-bay = \$30
6. HEATHKIT model HM-2102 25/250W RF Power / VSWR meter, manual, e-bay = \$40
7. MFJ-16010, QRP mini antenna tuner, e-bay = \$50
8. B&W model 595 six position HF coax switch, e-bay = \$20
9. BUNKER-RAMO, model 83-25W two position HF coax switch, e-bay = \$15
10. KENWOOD model MC-60, cardioid dynamic desk microphone with stand, manual, e-bay = \$75
11. ICOM model HM-23 hand held microphone with touch-tone pad, e-bay = \$50
12. YAESU model FT-411, 2 meter hand-held transceiver, includes two battery packs (AA cells), programmed with local repeaters, e-bay = \$35

13. BAOFENG model UV-5R, 2m/70cm dual-band, hand-held transceiver in original carton with many accessories including two battery packs, AC/DC charger, hand-held speaker/mic, mini earphone / mic, short & long SMA HT antennas, USB programming cable, CD, manual programmed for local repeaters Amazon price is \$28
 14. TEKTRONIX model 2213, Oscilloscope, 60 MHz, dual trace, CRT, manual, e-bay = \$200
 15. VIDEO-TECH model VDA-16WB, video distribution amplifier with adjustable gain and equalization. two inputs each with three outputs, BNC, 120Vac power, e-bay = \$45
 16. Box of assorted, misc. microphones, plus two headsets with boom mics - FREE
 17. Box of assorted length RG-59 (75 ohm) coaxial cables with BNC and F connectors - FREE
- =====



ITEMS FOR SALE OR GIVE AWAY:

FLEX model 6700 SDR transceiver

ICOM model 706Mk2G transceiver

ICOM model 2820 VHF/UHF with DV/GPS

YAESU model FT-857 HF/6m/2m/70cm

ALINCO model DR06 6 m FM mobile

ACOM 10 port HF hi power antenna switch

SM-1000 HF Digital Voice Adapter

see all plus many more items at:

www.slatsatn.net